

Raghu Ram Komara

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PROFESSIONAL SUMMARY

Software Engineer and AI Researcher pursuing a Master's in Artificial Intelligence and Business Analytics at the University of South Florida with experience building research software systems, healthcare-focused applications, distributed AI pipelines, and cloud-native platforms supporting biomedical research and clinical data workflows. Co-authored and presented research at WITS 2025 on privacy-preserving AI in healthcare using federated learning. Background includes backend engineering, research computing, healthcare data systems, and scalable cloud-based application development across enterprise and academic environments.

EDUCATION

Master of Science - Artificial Intelligence And Business Analytics

GPA: 3.83/4.00

University of South Florida, Tampa, FL

Aug 2024 - May 2026

Relevant Coursework: Machine Learning, Deep Learning, Application Development for Analytics, Cloud Solutions Architect, Big Data for Business, Advanced Database Management System, Foundations of Business Statistics

SKILLS

- **Programming:** Python, R, SQL, JavaScript, TypeScript, Java, C, C++, C#, OOP, OOD, Data Structures & Algorithms
- **Software Engineering:** SDLC, Software Architecture, Backend Development, REST APIs, JSON, XML, Microservices, Distributed Systems, Event-Driven Systems, Real-Time Streaming, Asynchronous Processing, System Design
- **Cloud, DevOps & Infrastructure:** Docker, Kubernetes, AWS (EC2, S3, RDS), Azure, CI/CD, GitHub Actions, Jenkins, Containerized Deployment, Virtualized Environments, Linux, Distributed Computing
- **Databases & Data Systems:** PostgreSQL, MySQL, Supabase, SQL, NoSQL, Database Design, Query Optimization, Data Modeling, Data Integration, Redis
- **Frameworks & Tools:** FastAPI, Flask, React, React Native, Next.js, GraphQL, Tailwind CSS, LangChain, LangGraph, Git, JIRA, Confluence, Bitbucket
- **AI, Research Computing & Analytics:** PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers, Federated Learning (Flower), NLP, Machine Learning, Anomaly Detection, Healthcare AI, Clinical Data Systems, HIPAA-Conscious Development, Reproducible Research Workflows, Tableau, Power BI, Excel, Pandas, NumPy, Elastic Stack (ELK)

WORK EXPERIENCE

Graduate Teaching Assistant, University of South Florida

Tampa, FL, Jan 2026 – May 2026

- Mentored 100–150 students in Python for Business Analytics, supporting data analysis, debugging, and analytical workflow development using Python, SQL, and Excel.
- Guided students in responsible use of AI-assisted development tools including Claude and GitHub Copilot for Python-based analytics, workflow automation, and output validation.
- Collaborated with faculty to support technical troubleshooting and continuous improvement of analytics-focused learning environments.

Graduate Research Assistant, University of South Florida

Tampa, FL, May 2025 – Present

- Developed distributed federated learning pipelines using Python, PyTorch, and Flower to support privacy-preserving healthcare AI research across decentralized medical datasets.
- Built reproducible research environments using Docker, Linux-based virtual machines, remote computing environments, and GPU-enabled training infrastructure to support scalable machine learning experimentation and distributed healthcare AI research workflows.
- Conducted data preprocessing, integration, exploration, and model evaluation using healthcare, medical imaging, and oncology-related datasets to support AI-driven research workflows.
- Designed and evaluated anomaly-aware aggregation and adaptive clipping techniques to improve robustness against adversarial attacks in healthcare federated learning systems.
- Collaborated with interdisciplinary research teams to conduct literature reviews, develop computational workflows, analyze experimental results, and contribute to research presented at WITS 2025 on privacy-preserving AI in healthcare.
- Leveraged AI-assisted development tools to accelerate experimentation, debugging, model evaluation, and workflow optimization across distributed healthcare AI research environments.
- Developed data visualization and analysis tools to support interpretation of experimental results across healthcare and oncology-related research datasets.

Full Stack Engineer, University of South Florida (Client: Evara Health)

Tampa, FL, Oct 2025 – Jan 2026

- Designed and developed mobile and web-based healthcare applications using React Native, FastAPI, and REST APIs to support real-time patient-provider communication workflows across clinical environments.
- Developed secure REST APIs and distributed backend services for healthcare data processing, emphasizing data integrity, scalable real-time communication, and reliable frontend-backend integration across cloud-based application environments.
- Built and deployed containerized healthcare applications using Docker and Azure cloud infrastructure while integrating Azure Cognitive Services for speech recognition and neural machine translation under HIPAA-conscious development and secure deployment practices.

Software Engineer, Accenture

Hyderabad, India, Jan 2023 – Aug 2024

- Developed scalable backend applications and microservices using Python and JavaScript, applying software engineering best practices across the software development lifecycle (SDLC).
- Designed and optimized PostgreSQL and MySQL database schemas using indexing, normalization, and query optimization techniques to support enterprise applications and downstream analytics workflows in Snowflake-based data environments.
- Built RESTful APIs and system integrations to support secure data exchange across distributed enterprise application environments.
- Worked with AWS cloud infrastructure EC2, S3, RDS and CI/CD pipelines using Jenkins and Git to support scalable production deployments.

PROJECTS

Federated Learning for Secure Intrusion Detection (FL-IDS): Developed a federated intrusion detection system using Docker-based orchestration to detect cyber threats across SOCs without sharing raw data.

AI Cybersecurity SOC Agent: Built a real-time GenAI-enabled security platform using FastAPI and Elastic Stack to process streaming logs and perform threat detection, leveraging LLM-based workflows and scalable inference pipelines for continuous monitoring.

Radiology Report to Structured JSON with LLM Fine-Tuning: Built an NLP pipeline using Hugging Face and LoRA to convert unstructured radiology reports into structured JSON, improving extraction accuracy and reliability.

ACHIEVEMENTS

- **Presented Research:** “Distinguishing Medical Diversity from Byzantine Attacks: Client-Adaptive Anomaly Detection for Healthcare Federated Learning” accepted as a Research-in-Progress paper at the Workshop on Information Technology and Systems (WITS), Nashville, USA, 2025.